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(56) Documents Cited

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(58) Field of Search

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INT CL⁶ B65D 25/10, G11B 23/023 23/03 33/04
ONLINE:WPI,EDOC,JAPIO

(54) Abstract Title

Storage container

(57) A storage container, particularly for compact discs, comprises a body (13), a hinged lid (16) pivoted to the body, and a disc holder (17) pivotally mounted to the lid and body. The lid (16) has an endwall (22) acting as an abutment that engages the holder (17) after a predetermined rotational movement of the lid (16) relative to the body (13), and thereafter continued rotational movement lifts the holder (17) to incline the holder relative to the body. The body (13), lid (16) and holder (17) are pivoted relative to each other by concentric pivot means (32). The holder (17) may have clip means to secure a disc on one or both faces and may pivotably support a second holder.

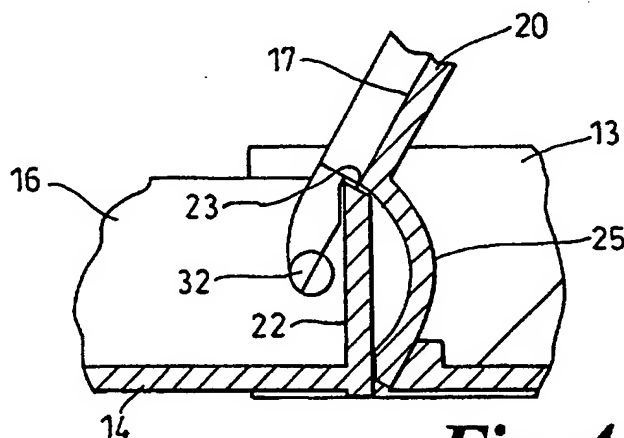


Fig. 4

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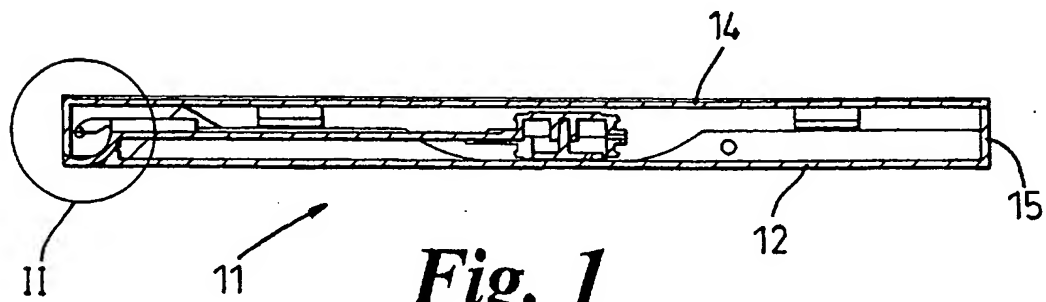


Fig. 1

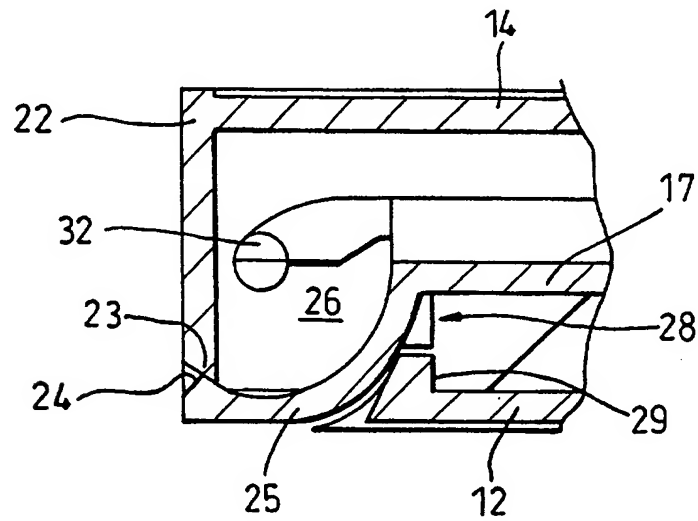


Fig. 2

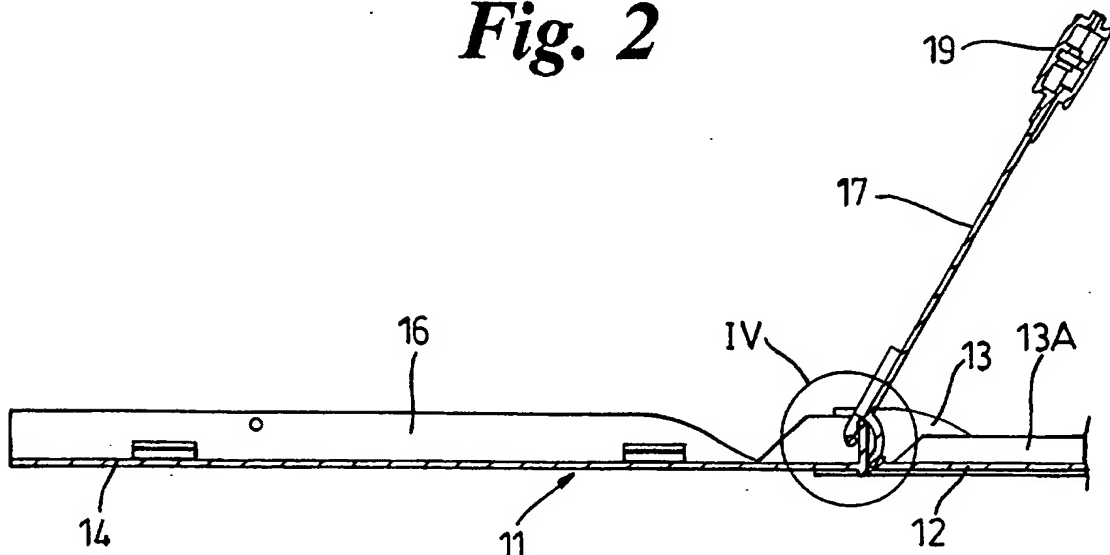


Fig. 3

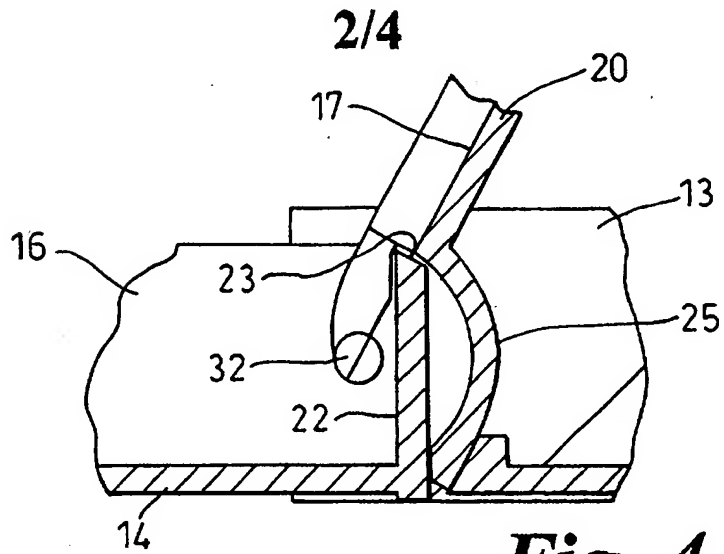


Fig. 4

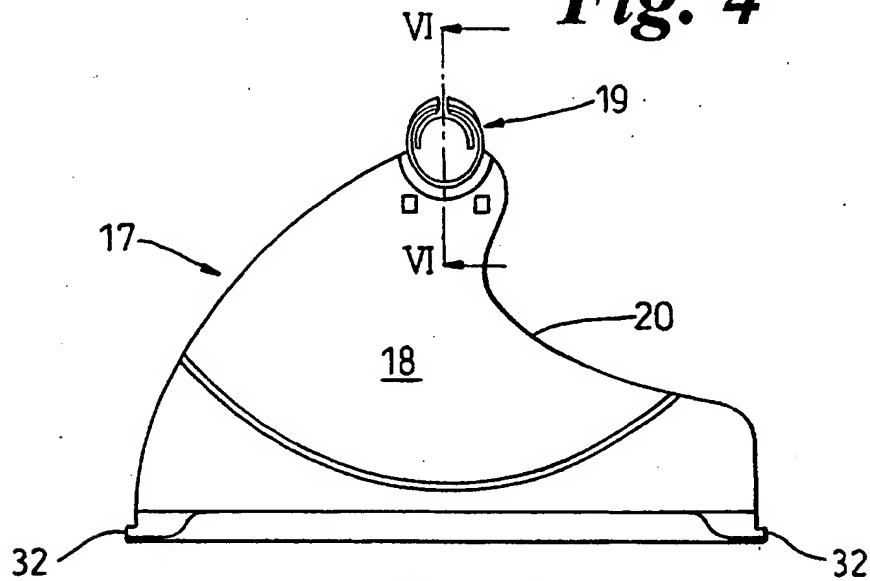


Fig. 5

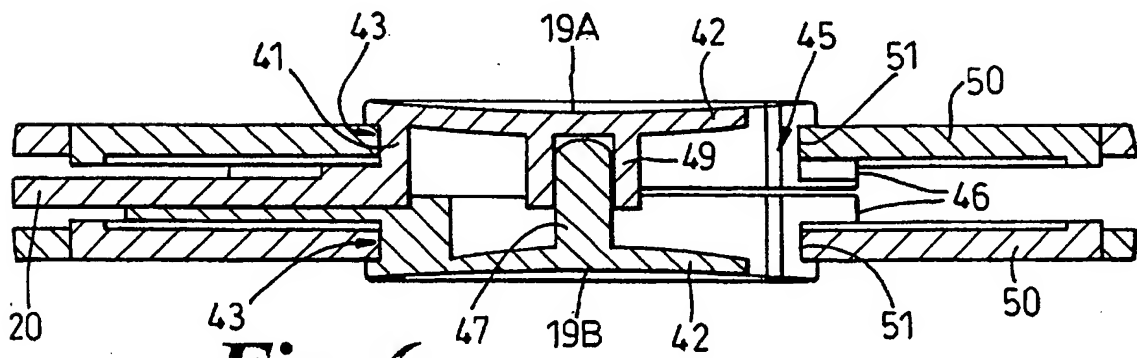


Fig. 6

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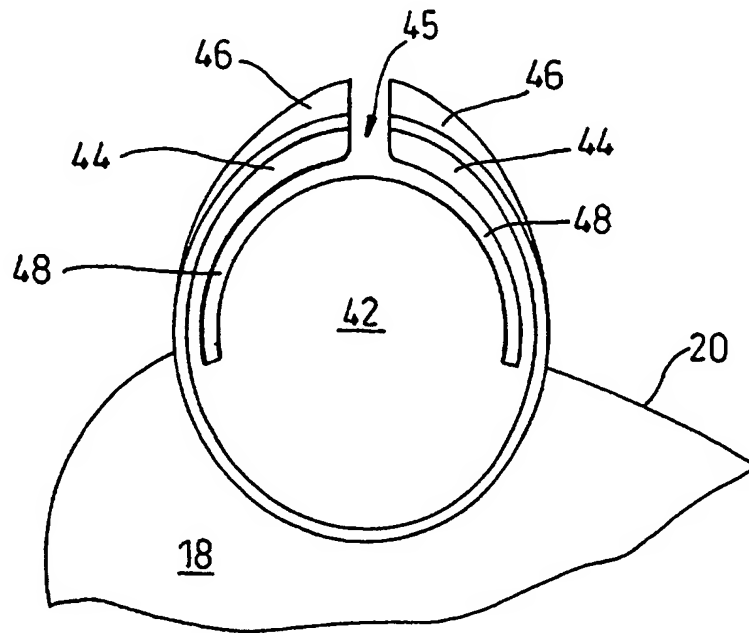


Fig. 7

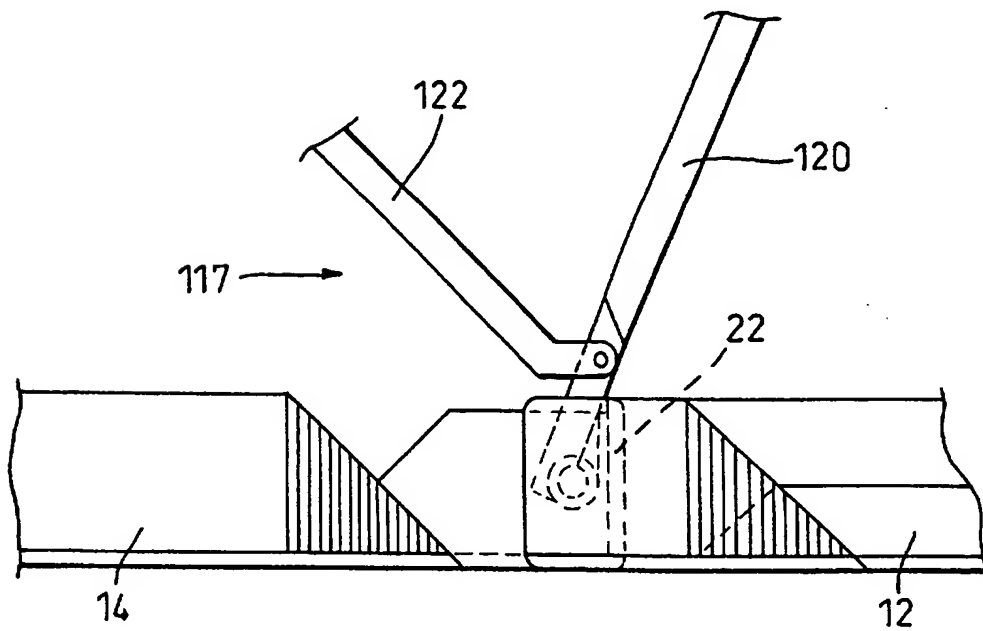
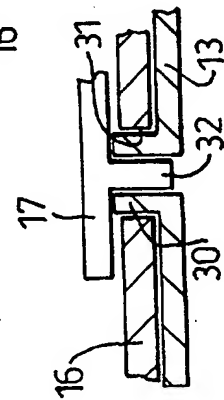
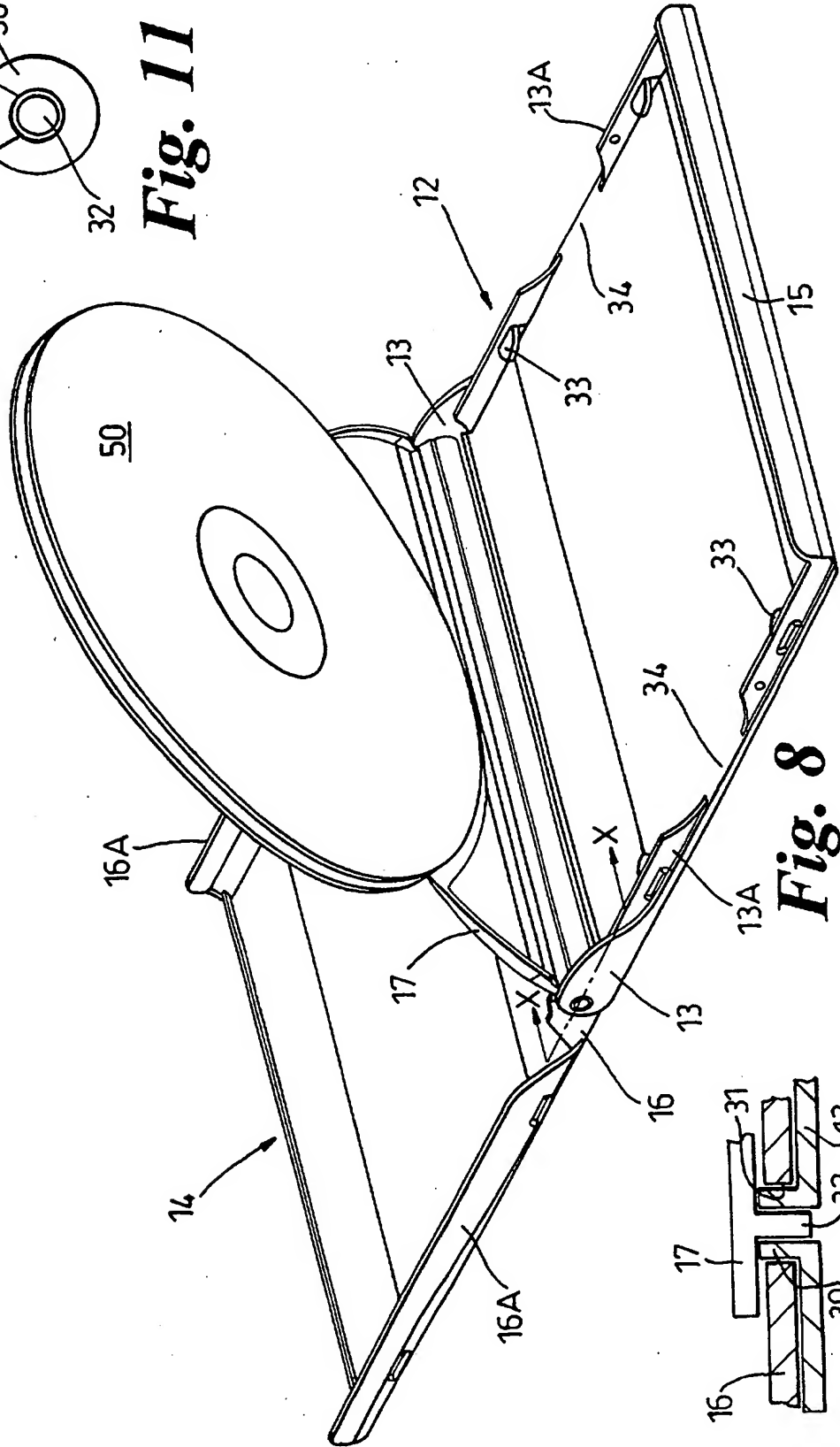
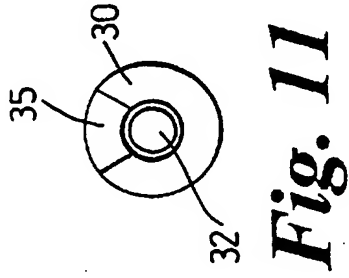


Fig. 9



A ContainerField

This invention relates to containers for articles, in particular discs used for the storage of data, and more
5 particularly for the storage of CD discs.

Background of the Invention

Containers for the storage of disc recording media such as compact digital audio discs (CD's), games discs, video
10 discs, etc. typically comprise a rectangular base having a rectangular lid pivotally connected to one end of the base, and a rectangular disc holder fixed into the base. The rectangular disc holder has a circular recess for receiving a disc. The holder typically has at its centre a circular
15 array of resilient fingers which clip into a circular hole in the centre of a disc to retain the disc in the recess.

Another known container the rectangular disc holder is pivotally mounted to the base and can be pivoted relative
20 to the body to expose both sides of the holder which can accommodate two discs, one located on each side of the holder.

Yet another container is described in EP-A-272 042 which
25 describes a container in which a triangular disc holder is pivoted to the base, and as the lid is pivoted to open the container after a predetermined movement lugs on the lid cause the holder to lift relative to the base. This allows

easy access to any disc stored on the holder.

The above container has disadvantages in that the lid cannot be fully opened without the holder being tipped backwards, and the lugs on the lid may be damaged, or cause
5 damage during the lifting of the holder.

The present invention provides a new type of CD container having a self-lifting holder and which is an improvement on
10 the above .

Statements of Invention

According to the present invention there is provided a storage container for an article and which comprises, a
15 body, a lid hinged for pivotal movement relative to the body, and a holder for the article pivotally mounted to the lid and body, the lid having abutment means thereon that engage the holder after a predetermined rotational movement in one direction of the lid relative to the body, and
20 thereafter continued rotational movement in said direction causes the holder to rotate relative to the body to incline the holder relative to the body and lift the article, the body, lid and holder all being pivoted relative to each other by concentric pivot means .

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Preferably the container is a recording media storage container. Recording media include tape cassettes and discs. More preferably the container is a recording disc

storage container.

The abutment means engage the underside of the holder, and may comprise portions of a sidewall of the lid which
5 extends substantially parallel to the axis of rotation of the lid relative to the body.

Preferably, the holder comprises a tongue, more preferably a substantially triangular tongue, having pivot pins at
10 each side of its base which locate within hollow pivot pins formed on the body and which engage in holes in sidewall portions of the lid. Conveniently, the holder is a disc holder having a resilient clip means which is engagable with a hole in the centre of the disc recording medium. The
15 clip means may be formed integrally with the tongue or may be secured thereto by any suitable means. A second resilient clip means may be provided on the other side of the holder so that the disc holder can accommodate two disc media located one on each side of the holder. The second
20 clip means may also be formed integrally with the tongue, or may be formed separately and secured to either the first clip means or tongue.

The resilient clip means comprises a circular head mounted
25 to the tongue on a smaller diameter cylindrical leg such that a portion of a recording disc is insertable between the head and tongue, and an outer peripheral portion of the head is resiliently collapsible radially inwardly to allow

a disc to pass over the head, which portions then expand to secure the disc in place. Preferably, the outer peripheral portions of the head comprise a pair of arcuate fingers extending around the head towards each other, and which are
5 attached to the head at their roots and are spaced from each other and the rest of the head allowing the fingers to move radially inwardly.

According to another aspect of the present invention there
10 is provided a storage container for a disc having a central hole, the container comprising , a body, a lid hinged for pivotal movement relative to the body, and a disc holder pivotally mounted to the lid, the disc holder having a resilient clip means which is engagable with the hole in
15 the centre of a disc, wherein the resilient clip means comprises a circular head mounted to the holder on a smaller diameter coaxial cylindrical leg such that a portion of a recording disc is insertable between the head and tongue, and an outer peripheral portion of the head is
20 resiliently collapsible radially inwardly to allow a disc to pass over the head, which portions then expand to secure the disc in place.

Preferably, the outer peripheral portions of the head
25 comprise a pair of arcuate fingers extending around the head towards each other, and which are attached to the head at their root and are spaced from each other and the rest of the head allowing the fingers to move radially inwardly.

The disc holder is specially suitable for use with CD's, VCD's, games discs, mini-CD's, and disc recording media in general.

Description of Drawings

5 The invention will be described by way of example and with reference to the accompanying drawings in which:

- Fig. 1 is cross-sectional view of a container according to the present invention in the closed condition,
- 10 Fig. 2 is an enlarged view of the encircled area II of Fig.1,
- Fig. 3 is a cross-sectional view of the container of Fig. 1 in the open condition;
- Fig. 4 is an enlarged view of the encircled area IV of Fig. 3,
- 15 Fig. 5 is a plan view of the disc holder from the container of Fig. 1, "
- Fig. 6 is an enlarged section of the clip means on the line VI-VI of Fig. 5 also showing a pair of discs secured on the clip means,
- 20 Fig. 7 is an enlarged plan view of the clip means on the holder of Fig.5,
- Fig. 8 is a isometric view of the container in a open condition with a pair of discs mounted on the raised holder,
- 25 Fig. 9 is a sectional view of a second embodiment of the Invention,
- Fig. 10 is a section on the line X-X of Fig 8, and

Fig. 11 is an end view of a hollow pivot pin formed on the body.

Detailed Description of the Invention

5 With reference to Figs 1 to 4, and Fig. 8, there is shown a CD disc container 11 according to the present invention. The container 11 comprises a rectangular body 12 having sidewalls 13 with inset portions 13A, and an endwall 15 to form a shallow cavity for storage of a disc. The inset
10 portions 13A of the sidewalls may have a gap 34 therein to accommodate the outer edges of any discs stored therein. A lid 14 is pivoted to one end of the body 12. The lid 14 has sidewalls 16, which are pivoted inside the sidewalls 13 and have raised portions 16A which in the closed condition
15 align with the sidewalls 13, and lie outside of the body sidewalls inset portions 13A. With reference also to Fig. 10, the lid 14 is pivoted to the body 12 by cylindrical hollow pivot pins 30 formed integrally with the body
20 sidewalls 13 which engage in holes 31 in the lid sidewalls 16. The inset portions 13A of the sidewalls may have lugs 33 formed on their inner surfaces to hold labels, or pamphlets in place. These lugs 33 may be made as small as possible yet still retain any label or pamphlet in place.

25 The lid 14 and body 12 are made from injection moulded thermoplastic materials such as transparent polystyrene, polyethylene terephthalate (PET), acrylic, polycarbonate, polypropylene or other suitable material.

A disc holder 17 is located between the lid 14 and body 12 and is pivoted at one end to both the lid 14 and body 12. The holder 17 has pivot pins 32 formed integrally therewith which are each located in a respective centre of a hollow pin 30 formed on the body sidewall 13. As can be seen in Fig 11 the end face of each hollow pin 30 has a slight recess 35 to help guide the pins 32 into location during assembly.

As can be seen in Fig.5, the disc holder 17 is substantially a triangular tongue 20 having clip means 19 at its apex to hold a disc in place and a recessed area 18 to accommodate a portion of a disc (not shown). The holder 17 is pivoted to the lid 14 and body 12 by oppositely extending pins 32 located adjacent the base of the triangle. The pins 32 locate in the hollow pins 30 as previously described. The holder 17 is also formed from an injection moulded thermoplastic material such as ABS, nylon, or polyolefins such as polypropylene, or high density polyethylene.

The lid 14 has an endwall 22 adjacent the pivot holes 31 for the disc holder 17 such that the endwall 22 extends substantially parallel with the axis of rotation of the holder 17 around both the body 12 and the lid 14. The free edge 23 of the end wall 22 is inclined and in the closed condition lies close to a cooperating inclined surface 24 on the back of an off-set portion 25 of the disc holder 17.

- The off-set portion 25 is offset from axis of rotation of the pivot pins 30 & 32 and lies below the general plane of the tongue forming a cavity 26 between the curved portion 25 and the rest of the holder. The curved portion 25 extends along the length of the base of the tongue and in use serves to fill a gap adjacent the pivot pins 30, 32 between the lid and body in the closed condition of the container.
- 10 When the lid 14 is opened by anticlockwise rotation of the lid about its pivot pins 30, that is anticlockwise as viewed in Figs. 1-4, the endwall 22 is moved into the cavity 26 and after a predetermined relative rotation, between the lid 14 and holder 17, comes into abutment with the underside of the holder. This is the relative position of lid 14 and holder 17 shown in Fig.4. Further anticlockwise rotation of the lid 14 rotates the holder 17 relative to the body 12 and lifts the holder 17 to incline the holder relative to the body as is shown in Fig.3 and Fig 8. This movement continues until the lid is fully open with the lid and body being substantially in the same plane and the holder being held at about 60 degrees to give access to discs 50 on both sides of the holder.
- 25 The holder 17 is lowered back into the container by reverse rotational movement of the lid in the clockwise direction relative to the body 12. A stop 28 on the underside of the holder abuts a cooperating stop 29 on the body 12 to hold

the disc holder substantially parallel to the lid and body in the closed condition.

- 5 The holder 17 may be formed with an abutment means (not shown) to prevent the holder from excess anti-clockwise movement once the container is fully open. Such an abutment may be located at the base of the tongue 20. Similar abutments may be formed adjacent the base of the tongue 20
10 to hold the tongue substantially horizontal when it lowered into the body.

The clip means 19 is shown in detail in Figs. 6 and 7. In the present embodiment there is clip means 19a & 19B
15 located one on each side of the holder so as to accommodate two CDs 50 although only one clip means is needed for a single disc. Each clips means 19 comprises a cylindrical hollow leg 41 which is just smaller in diameter than the hole 51 in the centre of a CD disc 50. The leg 41 is
20 secured to or formed integrally with the tongue 20. Each leg 41 has a larger diameter head 42 on its free end so that an annular gap 43 is formed between the respective head 42 and tongue 20 which is just wider than the thickness of a standard CD. The head 42 may be domed as
25 shown in Fig. 3 . or concave ,as shown in Fig. 6, or flat. The outer peripheral margin of each head 42 on it side away from the recess 18 is formed into two resilient arcuate arms or fingers 44 which extend towards each other. The

arms 44 are spaced from the rest of the head by a semi-circular gap 48 and their free ends are also spaced by a radial gap 45. The outer margin of each arm is also formed with crescent shaped ledge 46 aligned with the tongue 20 to support a CD when located on the holder.

The two clip means 19A 19B are formed with interengaging central spigot 47 on the back of one means 19B and a receiving round socket 49 formed on the back of the other means to help located the two clip means relative to each other and provide mutual support therebetween.

In use, a CD is placed with one edge of its central hole 51 in position in the gap 43 between the inner side of a head 42 and the tongue 20, with the edge of the hole against the leg 41. The CD is then pushed over the head 42 with the arms 44 being moved radially inwardly by the edges of the central CD hole 51 to allow the CD to pass over the head. Once the CD has passed over and is located between the head 42 and the tongue 20, the arms 44 spring outwards to hold the CD in position.

To remove the CD, the disc 51 is pushed inwardly towards the base of the tongue 20 until the edge of the hole 51 abuts the leg 41 of the clip means 19, and the side of the disc adjacent the tongue recess is lifted away from holder 20. The arms 44 then flex inwardly to release the disc.

The container may have several minor modifications. The endwall 15 of the body 12 may instead be formed on the lid 14. Thumb or finger indents or tabs may be provided on the lid walls to facilitate opening the container lid.

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An alternative double disc holder 117 is in Fig. 8 in which the tongue 120 holds only a single disc , and a second tongue 122 is pivoted to the first tongue 120.

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Claims

1. A storage container for an article and which comprises,
a body, a lid hinged for pivotal movement relative to the
body, and a holder for the article pivotally mounted to the
lid and body , the lid having abutment means thereon that
engage the holder after a predetermined rotational movement
in one direction of the lid relative to the body, and
thereafter continued rotational movement in said direction
causes the holder to rotate relative to the body to incline
the holder relative to the body and lift the article, the
body, lid and holder all being pivoted relative to each
other by concentric pivot means.
2. A container as claimed in Claim 1, wherein the abutment
means engage the underside of the holder adjacent the body.
3. A container as claimed in Claim 2, wherein the abutment
means comprise at least a portion of a sidewall of the lid
which extends substantially parallel with the pivotal axis
of the lid relative to the body.
4. A container as claimed in Claim 3, wherein the abutment
means extends across substantially the full length of the
sidewall.
5. A container as claimed in any one of claims 1 to 4,
wherein the holder comprises a tongue having a pivot pin at

each side of its base which locates in a respective hollow pivot pin formed on the base and located in a respective hole in a sidewall portion of the lid.

- 5 6. A container as claimed in any one of Claims 1 to 5 wherein the holder is a disc holder having a resilient clip means which is engagable with a hole in the centre of a disc recording medium.
- 10 7. A container as claimed in any one of Claims 1 to 6 wherein at least one further disc holder is pivotally mounted on the first disc holder.
- 15 8. A container as claimed in Claim 6, wherein there is further provided a second resilient clip means on the other side of the holder so that the disc holder can accommodate two disc media located one on each side of the holder.
- 20 9. A container as claimed in any one of claims 6 to 8, wherein the resilient clip means comprises a circular head mounted to the tongue on a smaller diameter cylindrical leg such that a portion of a recording disc is insertable between the head and tongue, and an outer peripheral portion of the head is resiliently collapsible radially inwardly to allow a disc to pass over the head, which
25 portions then expand to secure the disc in place.
10. A container as claimed in claim 9, wherein the outer

peripheral portions of the head comprise a pair of arcuate fingers extending around the head towards each other, and which are attached to the head at their root and are spaced from each other and the rest of the head allowing the
5 fingers to move radially inwardly.

11. A storage container for a disc recording medium and which comprises, a body, a lid hinged for pivotal movement relative to the body, and a disc holder pivotally mounted
10 to the lid, the disc holder having a resilient clip means which is engagable with a hole in the centre of a recording disc, wherein the resilient clip means comprises a circular head mounted to the holder on a smaller diameter coaxial cylindrical leg such that a portion of a recording disc is
15 insertable between the head and tongue, and an outer peripheral portion of the head is resiliently collapsible radially inwardly to allow a disc to pass over the head, which portions then expand to secure the disc in place.

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12. A container as claimed in Claim 11, wherein said outer peripheral portions of the head comprise a pair of arcuate fingers extending around the head towards each other, and which are attached to the head at their root and
25 are spaced from each other and the rest of the head allowing the fingers to move radially inwardly.

13. A container as claimed in Claim 11 or Claim 12, wherein

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the holder comprises two resilient clip means arranged back to back with each other on the disc holder.

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Application No: GB 9909028.4
Claims searched: 1 to 10

Examiner: Mike Henderson
Date of search: 8 July 1999

Patents Act 1977
Search Report under Section 17

Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

UK Cl (Ed.Q): B8P (PG3B PG3E PG3X PE2C PE2J)

Int Cl (Ed.6): B65D 25/10 G11B 23/03 23/023 33/04

Other: ONLINE: WPI, EDOC, JAPIO

Documents considered to be relevant:

Category	Identity of document and relevant passage	Relevant to claims
X, Y	EP 0221749A2 (SONY CORP) (Whole disclosure relevant)	X:Cl 1 to 3 Y:Cl 6 to 8
Y	WO 92/22065A1 (PILZ TECHNOLOGIE GmbH) (Figs 1 & 3 and abstract particularly relevant)	6 to 8

X Document indicating lack of novelty or inventive step
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